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Moody et al.

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(54) **INFLATABLE SEALING DEVICE**

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(58) **Field of Search** 277/637, 641, 277/642, 645, 646, 921; 49/477.1, 303, 304

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(57) **ABSTRACT**

An inflatable sealing device is used to seal a door, such as a shutter door in a submarine, when the door is closed. The inflatable sealing device includes a seal retainer positioned around the opening through a structure, such as a submarine hull or other type of wall. An inflatable seal is positioned with a retainer cavity within the seal retainer. The inflatable seal includes a seal periphery and a seal tip extending from the seal periphery. The seal periphery preferably has an elliptical cross section in a deflated state and a circular cross section in an inflated state such that the seal tip extends into a gap to seal the door when the inflatable seal is pressurized and inflated. The seal tip retracts into the seal retainer when the inflatable seal is deflated. A pressure actuator, such as a bellows, is used to pressurize the inflatable seal using an actuating fluid. The bellows can be compressed using a door arm coupled to the door such that the seal is automatically actuated to seal the door as the door reaches its fully closed position.

25 Claims, 2 Drawing Sheets